

REMARKS

In the final Office Action, the Examiner asserts that claims 46-69 are not entitled to the benefit of the filing date of Provisional Application No. 60/090,028; rejects claims 46, 47, and 59 under 35 U.S.C. § 103(a) as unpatentable over VOGEL (U.S. Patent No. 6,075,788) in view of MASTER et al. (U.S. Patent No. 6,237,029); rejects claims 48-58 and 60-64 under 35 U.S.C. § 103(a) as unpatentable over VOGEL in view of MASTER et al., and further in view of SCHMIDT et al. (U.S. Patent No. 6,205,154); rejects claims 65-69 under 35 U.S.C. § 103(a) as unpatentable over VOGEL further in view of SCHMIDT et al.; rejects claims 46, 47, and 59 on the ground of non-statutory obviousness-type double patenting as unpatentable over claims 1, 3, 5, and 8 of BROMLEY et al. (U.S. Patent No. 6,658,021) in view of MASTER et al., and further in view of VOGEL; rejects claims 45-58 and 60-64 on the ground of non-statutory obviousness-type double patenting as unpatentable over claims 1, 3, 5, and 8 of BROMLEY et al. in view of MASTER et al., further in view of VOGEL, and still further in view of SCHMIDT et al.; rejects claims 65-69 on the ground of non-statutory obviousness-type double patenting as being unpatentable over claims 1, 3, 5, and 8 of BROMLEY et al. in view of VOGEL, and further in view of SCHMIDT et al. Applicants respectfully traverse the above assertion and rejections. Claims 46-69 remain pending.

Assertion regarding claim for priority

The Examiner alleges that claims 46-69 are not entitled to the benefit of the filing date of U.S. Provisional Application No. 60/090,028. In particular, the Examiner alleges that the provisional application does not provide link sending or receiving channelized

data tributary streams that carry both Packet over SONET and ATM over SONET in tributary streams together simultaneously (final Office Action, p. 2). Applicants disagree.

At the outset, Applicants note that this is the second attempt by the Examiner to dismiss Applicants' claim for priority. In the previous Office Action, the Examiner alleged that Applicants' claims are not entitled to the benefit of U.S. Patent Application No. 09/335,947 (of which the present application is a divisional) because the present application "claims additional disclosure not presented in the prior application" (non-final Office Action, dated May 20, 2008, p. 2). Applicants successfully rebutted this allegation.

Now, in the final Office Action, the Examiner alleges that claims 46-69 are not entitled to the benefit of the filing date of U.S. Provisional Application No. 60/090,028 because the provisional application does not provide a link sending or receiving channelized data tributary streams that carry both Packet over SONET and ATM over SONET in tributary streams together simultaneously (final Office Action, p. 2). Applicants disagree and direct the Examiner's attention to, for example, page 183 of U.S. Provisional Application No. 60/090,028, which specifically depicts a channelized SONET/SDH, where a tributary stream can include Packet over SONET and ATM over SONET signaling.

For at least the foregoing reasons, Applicants submit that the Examiner's allegation regarding priority lacks merit.

Rejection under 35 U.S.C. § 103(a) based on VOGEL and MASTER et al.

Claims 46, 47, and 59 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over VOGEL in view of MASTER et al. Applicants respectfully traverse this rejection.

Independent claim 46 is directed to a device comprising a demultiplexer configured to receive a channelized synchronous optical network (SONET) data stream and separate the channelized SONET data stream into constituent tributary data streams, the tributary data streams simultaneously including a packet over SONET (POS) tributary data stream, and an asynchronous transfer mode (ATM) tributary data stream; and a line card coupled to the demultiplexer and configured to provide the demultiplexer with the channelized SONET data stream. VOGEL and MASTER et al., whether taken alone or in any reasonable combination, do not disclose or suggest this combination of features.

For example, VOGEL and MASTER et al. do not disclose or suggest a demultiplexer configured to receive a channelized synchronous optical network (SONET) data stream and separate the channelized SONET data stream into constituent tributary data streams, the tributary data streams simultaneously including a packet over SONET (POS) tributary data stream, and an asynchronous transfer mode (ATM) tributary data stream. The Examiner relies on col. 5, line 25 to col. 6, line 61, of VOGEL for allegedly disclosing "a demultiplexer configured to receive a channelized synchronous optical network (SONET) data stream and separate channelized SONET data stream into constituent tributary data streams" and "packet over SONET tributary data streams ... and an asynchronous transfer mode (ATM) tributary data stream ... and a demultiplexer with the channelized SONET data stream" (final Office Action, p. 3). The Examiner admits that VOGEL does not disclose "tributary data streams simultaneously" and relies

on Fig. 3B of MASTER et al. for allegedly disclosing this feature (final Office Action, p. 3). Applicants object to the Examiner's piecemeal attempt at reconstructing Applicants' claim 46.

Applicants' claim 46 does not recite "a demultiplexer configured to receive a channelized synchronous optical network (SONET) data stream and separate channelized SONET data stream into constituent tributary data streams," "packet over SONET tributary data streams ... and an asynchronous transfer mode (ATM) tributary data stream ... and a demultiplexer with the channelized SONET data stream," "tributary data streams simultaneously," as the Examiner alleges. Instead, Applicants' claim 46 specifically recites a demultiplexer configured to receive a channelized SONET data stream and separate the channelized SONET data stream into constituent tributary data streams, the tributary data streams simultaneously including a POS tributary data stream, and an ATM tributary data stream. Instead of addressing this specifically recited feature of claim 46, the Examiner breaks the feature down into illogical portions and points to a section of VOGEL for allegedly disclosing one portion and on an unrelated section of MASTER et al. for allegedly disclosing another portion of claim 46. Applicants submit that such attempts at reconstructing Applicants' claims are clearly impermissible.

Applicants note that since, as the Examiner admits, VOGEL does not disclose the tributary of data streams simultaneously including a POS tributary data stream and an ATM tributary data stream, VOGEL cannot reasonably be relied on for disclosing a demultiplexer configured to receive a channelized SONET data stream and separate the channelized SONET data stream into constituent tributary data streams, where the

tributary data streams simultaneously include a POS tributary data stream, and an ATM tributary data stream, as recited in claim 46.

Nevertheless, at col. 5, line 25 to col. 6, line 61, VOGEL discloses that a single-chip SONET physical layer device 30 that includes a control port 32, UTOPIA bus interface port 34, a standard bus interface port 36, a SONET interface port 38, control and management interface block 40, enhanced UTOPIA interface block 42, point-to-point (PPP) processing block 44, SONET framer block 46, and SONET line interface 48. VOGEL does not disclose or suggest that SONET device 30 includes a demultiplexer or that control port 32, UTOPIA bus interface port 34, standard bus interface port 36, SONET interface port 38, control and management interface block 40, enhanced UTOPIA interface block 42, PPP processing block 44, SONET framer block 46, or SONET line interface 48 performs demultiplexing. Moreover, the Examiner provides no explanation as to why one skilled in the art would reasonably construe control port 32, UTOPIA bus interface port 34, standard bus interface port 36, SONET interface port 38, control and management interface block 40, enhanced UTOPIA interface block 42, PPP processing block 44, SONET framer block 46, or SONET line interface 48 as a demultiplexer, as that device is known in the art. Accordingly, the Examiner has not met the initial burden of establishing a *prima facie* case of obviousness with respect to claim 46.

In addition, VOGEL discloses that SONET device 30 operates in one of three modes. Specifically, VOGEL discloses that SONET device 30 can transmit standard ATM cells in SONET synchronous payload envelope (SPE) fields (col. 5, line 50 to page 6, line 24), PPP data frames in ATM cells in SONET SPE fields (col. 6, lines 25-37), and

PPP data frames from a UTOPIA Interface in SONET SPE fields (col. 6, lines 41-61).

VOGEL does not disclose or suggest that any of these different modes includes the use of a demultiplexer configured to receive a channelized SONET data stream and separate the channelized SONET data stream into constituent tributary data streams, where the tributary data streams simultaneously include a POS tributary data stream, and an ATM tributary data stream, as recited in claim 46. In fact, the entire VOGEL disclosure does not even mention a demultiplexer.

The disclosure of MASTER et al. does not remedy the above deficiency in the disclosure of VOGEL. In Fig. 3B, MASTER et al. depicts a typical multiplexing structure that is described in the background section of MASTER et al. (col. 2, lines 23-24). This figure of MASTER et al. in no way discloses or suggests a demultiplexer configured to receive a channelized SONET data stream and separate the channelized SONET data stream into constituent tributary data streams, where the tributary data streams simultaneously include a POS tributary data stream, and an ATM tributary data stream, as recited in claim 46. In fact, this figure of MASTER et al. in no way discloses or suggests tributary data streams that simultaneously include a POS tributary data stream and an ATM tributary data stream. Moreover, Applicants note that the entire MASTER et al. disclosure does not even mention the SONET protocol. The Examiner provides no explanation as to how this figure of MASTER et al. can reasonably be construed as disclosing the above feature of claim 46. Accordingly, the Examiner has not met the initial burden of establishing a *prima facie* case of obviousness with respect to claim 46.

Therefore, even if MASTER et al. were combined with VOGEL, such a combination could not fairly be construed to disclose a demultiplexer configured to

receive a channelized SONET data stream and separate the channelized SONET data stream into constituent tributary data streams, where the tributary data streams simultaneously include a POS tributary data stream, and an ATM tributary data stream, as recited in claim 46. Further, even if for the sake of argument, the combination of MASTER et al. with VOGEL could fairly be construed to disclose each of the features of claim 46, Applicants assert that the reasons for combining MASTER et al. with VOGEL do not satisfy the requirements of 35 U.S.C. § 103.

For example, with respect to the reasons for combining MASTER et al. with VOGEL, the Examiner alleges (final Office Action, p. 3):

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the tributary data streams simultaneously of Master in place of the tributary data streams of Vogel in order to create SONET or SDH which can be add/drop multiplexed in compliance with the SONET or SDH standard.

Applicants submit that the Examiner's allegation is merely a conclusory statement of an alleged benefit of the combination. Such conclusory statements have been repeatedly held to be insufficient for establishing a *prima facie* case of obviousness. In this respect, Applicants rely upon KSR International Co. v. Teleflex Inc., 550 U.S. ____ (April 30, 2007) (citing In re Kahn, 441 F.3d 977, 988 (Fed. Cir. 2006)), where it was held that rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.

Furthermore, the Examiner does not explain how incorporating MASTER et al.'s typical multiplexing structure, depicted in Fig. 3B of MASTER et al., into VOGEL's SONET physical layer device 30 would allow VOGEL's SONET physical layer device

30 to receive tributary data streams that simultaneously include a POS tributary data stream and an ATM tributary data stream. The Examiner's allegations fall short of providing the articulated reasoning required by KSR.

Moreover, Applicants note that VOGEL is directed to a SONET physical layer device 30 (Abstract). MASTER et al. is directed to adaptable digital protocol processing (Abstract). MASTER et al. does not relate to the SONET protocol. Clearly, there can be no motivation to combine the SONET physical layer device of VOGEL and the non-SONET multiplexing format aspects of MASTER et al. to achieve Applicants' invention. These references are unrelated. One of ordinary skill in the art would not have been motivated to combine disparate features from MASTER et al. with VOGEL, absent impermissible hindsight.

Since VOGEL and MASTER et al. do not disclose or suggest a demultiplexer configured to receive a channelized SONET data stream and separate the channelized SONET data stream into constituent tributary data streams, where the tributary data streams simultaneously include a POS tributary data stream, and an ATM tributary data stream, VOGEL and MASTER et al. cannot disclose or suggest a line card coupled to the demultiplexer and configured to provide the demultiplexer with the channelized SONET data stream, as also recited in claim 46.

For at least the foregoing reasons, Applicants submit that claim 46 is patentable over VOGEL and MASTER et al. Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the rejection of claim 46 under 35 U.S.C. § 103(a) based on VOGEL and MASTER et al.

Claim 47 depends from claim 46. Therefore, Applicants submit that this claim is patentable over VOGEL and MASTER et al., whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 46. Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the rejection of claim 47 under 35 U.S.C. § 103(a) based on VOGEL and MASTER et al.

Independent claim 59 recites features similar to (yet possibly of different scope than) features described above with respect to claim 46. Therefore, Applicants submit that claim 59 is patentable over VOGEL and MASTER et al., whether taken alone or in any reasonable combination, for at least reasons similar to reasons given above with respect to claim 46. Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the rejection of claim 59 under 35 U.S.C. § 103(a) based on VOGEL and MASTER et al.

**Rejection under 35 U.S.C. § 103(a) based on
VOGEL, MASTER et al., and SCHMIDT et al.**

Claims 48-58 and 60-64 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over VOGEL in view of MASTER et al., and further in view of SCHMIDT et al. Applicants respectfully traverse this rejection.

Claims 48-52 depend from claim 46. Without acquiescing in the rejection of claims 48-52, Applicants submit that the disclosure of SCHMIDT et al. does not remedy the deficiencies in the disclosures of VOGEL and MASTER et al. discussed above with respect to claim 46. Therefore, Applicants submit that claims 48-52 are patentable over VOGEL, MASTER et al., and SCHMIDT et al., whether taken alone or in any reasonable combination, for at least the reasons as set forth above with respect to claim 46.

Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the rejection of claims 48-52 under 35 U.S.C. § 103(a) based on VOGEL, MASTER et al., and SCHMIDT et al.

Independent claim 53 is directed to one or more devices in a data processing environment that includes a multiplexer configured to simultaneously receive tributary data streams including a packet over synchronous optical network (POS) tributary data stream, and an asynchronous transfer mode (ATM) tributary data stream, the multiplexer being further configured to combine the simultaneously received tributary data streams into a single channelized synchronous optical network (SONET) data stream; and a line card coupled to the multiplexer and configured to receive the single channelized SONET data stream. VOGEL, MASTER et al., and SCHMIDT et al., whether taken alone or in any reasonable combination, do not disclose or suggest this combination of features.

For example, VOGEL, MASTER et al., and SCHMIDT et al. do not disclose or suggest a multiplexer configured to simultaneously receive tributary data streams including a POS tributary data stream, and an ATM tributary data stream, the multiplexer being further configured to combine the simultaneously received tributary data streams into a single channelized SONET data stream. The Examiner relies on col. 5, line 25 to col. 6, line 61, of VOGEL for allegedly disclosing "a multiplexer configured to receive tributary data streams," "Packet over synchronous optical network (POS) tributary data stream," "[a]n asynchronous transfer mode (ATM tributary data stream," and "[t]he multiplexer being further being configured to provide a tributary streams" (final Office Action, p. 6). The Examiner admits that VOGEL does not disclose "simultaneously receiving tributary data streams or combining the tributary data streams into single

channel SONET data stream" and relies on Fig. 3B of MASTER et al. for allegedly disclosing "simultaneously receiving tributary data streams" and on col. 3, lines 33-67, of SCHMIDT et al. for allegedly disclosing "combining the tributary data streams into single channel SONET data stream" (final Office Action, pp. 6-7). Applicants objects to the Examiner's piecemeal attempt at reconstructing Applicants' claim 53.

Applicants' claim 53 does not recite "a multiplexer configured to receive tributary data streams," "Packet over synchronous optical network (POS) tributary data stream," "[a]n asynchronous transfer mode (ATM tributary data stream," "[t]he multiplexer being further being configured to provide a tributary streams, "simultaneously receiving tributary data streams," and "combining the tributary data streams into single channel SONET data stream" as the Examiner alleges. Instead, Applicants' claim 53 specifically recites a multiplexer configured to simultaneously receive tributary data streams including a POS tributary data stream, and an ATM tributary data stream, the multiplexer being further configured to combine the simultaneously received tributary data streams into a single channelized SONET data stream. Instead of addressing this specifically recited feature of claim 53, the Examiner breaks the feature down into illogical portions and points to a section of VOGEL for allegedly disclosing a portion of the above feature of claim 53, on an unrelated section of MASTER et al. for allegedly disclosing another portion of the above feature of claim 53, and on still another unrelated section of SCHMIDT et al. for allegedly disclosing yet another portion of the above feature of claim 53. Applicants submit that such attempts at reconstructing Applicants' claims are clearly impermissible.

Applicants note that since, as the Examiner admits, VOGEL does not disclose simultaneously received tributary data streams including a POS tributary data stream and an ATM tributary data stream, VOGEL cannot reasonably be relied on for disclosing a multiplexer configured to simultaneously receive tributary data streams including a POS tributary data stream, and an ATM tributary data stream, the multiplexer being further configured to combine the simultaneously received tributary data streams into a single channelized SONET data stream, as recited in claim 53.

Nevertheless, at col. 5, line 25 to col. 6, line 61, VOGEL discloses that a single-chip SONET physical layer device 30 that includes a control port 32, UTOPIA bus interface port 34, a standard bus interface port 36, a SONET interface port 38, control and management interface block 40, enhanced UTOPIA interface block 42, point-to-point (PPP) processing block 44, SONET framer block 46, and SONET line interface 48. The Examiner relies on VOGEL's SONET framer block 46 as allegedly corresponding to the recited multiplexer (final Office Action, p. 6). Applicants note, however, that VOGEL does not disclose or suggest that VOGEL's SONET framer block 46 includes a multiplexer or even performs multiplexing. Instead, VOGEL merely discloses that SONET framer block 46 forms a SONET frame (see, for example, col. 6, lines 1-3). The Examiner provides no explanation as to why one skilled in the art would reasonably construe VOGEL's SONET framer block 46 as a multiplexer, as that device is known in the art. Accordingly, the Examiner has not met the initial burden of establishing a *prima facie* case of obviousness with respect to claim 53.

In addition, VOGEL discloses that SONET device 30 operates in one of three modes. Specifically, VOGEL discloses that SONET device 30 can transmit standard

ATM cells in SONET synchronous payload envelope (SPE) fields (col. 5, line 50 to page 6, line 24), PPP data frames in ATM cells in SONET SPE fields (col. 6, lines 25-37), and PPP data frames from a UTOPIA Interface in SONET SPE fields (col. 6, lines 41-61). VOGEL does not disclose or suggest that any of these different modes includes the use of a multiplexer that is configured to simultaneously receive tributary data streams including a POS tributary data stream, and an ATM tributary data stream, the multiplexer being further configured to combine the simultaneously received tributary data streams into a single channelized SONET data stream, as recited in claim 53.

The disclosures of MASTER et al. and SCHMIDT et al. do not remedy the above deficiency in the disclosure of VOGEL. In Fig. 3B, MASTER et al. depicts a typical multiplexing structure that is described in the background section of MASTER et al. (col. 2, lines 23-24). This figure of MASTER et al. in no way discloses or suggests a multiplexer configured to simultaneously receive tributary data streams including a POS tributary data stream, and an ATM tributary data stream, the multiplexer being further configured to combine the simultaneously received tributary data streams into a single channelized SONET data stream, as recited in claim 53. In fact, this figure of MASTER et al. in no way discloses or suggests simultaneously received tributary data streams that include a POS tributary data stream and an ATM tributary data stream. Moreover, Applicants note that the entire MASTER et al. disclosure does not even mention the SONET protocol. The Examiner provides no explanation as to how this figure of MASTER et al. can reasonably be construed as disclosing the above feature of claim 53. Accordingly, the Examiner has not met the initial burden of establishing a *prima facie* case of obviousness with respect to claim 53.

At col. 3, lines 33-67, SCHMIDT et al. discloses:

The basic rate at which SONET operates is STS-1 ("Synchronous Transport Signal" Level-1), which supports data transmission at 51.84 Mbits/s. The optical counterpart of STS-1 is OC-1 ("Optical Carrier" Level-1). In SONET networks, higher transmission rates are direct multiples of the basic rate, for instance, STS-48/OC-48 is 48 times STS-1/OC-1 or 2.48 Gbits/s. SONET transmission equipment interleaves STS-1 channels with other STS-1 channels in simple integer multiples to form a synchronous high speed signal which carries multiple service requests. This functionality permits easy access to lower speed signals, such as T1 (a rate of 1.544 Mbps in North America) and T3 (a rate of 44.736 Mbps globally), without multi-stage multiplexing or demultiplexing. In SONET networks, the lower speed signals are mapped into sub-STS-1 signals called Virtual Tributaries ("VT"). VTs are sub-SONET bandwidth structures which are designed for the transporting and switching of sub-T3 (below 44.736 Mbps) loads. These VTs can be easily combined or concatenated for transmission of various types of services through a network. For example, an STS-1 channel is defined as having 28 VT1.5 channels, each channel having the capacity to carry a T1 service.

More specifically, an OC-N SONET facility is divided into N STS-1 time slots, each of which comprises 28 VT1.5 time slots. The STS-1 time slots are ordered 1 through N, where N can be as high as 48. Each T1 service is carried by a single VT1.5 time slot in a single STS-1 time slot. A T3 service requires a single STS-1 time slot and a STS-3c service requires three contiguous STS-1 time slots. Altogether the SONET facility can carry as many as 28 N T1's, N T3's or N/3 STS-3c's, or various combinations of these services.

In addition to automatic path selection, the present invention prevents bandwidth fragmentation and optimizes bandwidth utilization by selecting the time slot which maximizes....

This section of SCHMIDT et al. discloses SONET transmission equipment that interleaves STS-1 channels with other STS-1 channels. SCHMIDT et al. discloses that this functionality permits easy access to lower speed signals, such as T1 (a rate of 1.544 Mbps in North America) and T3 (a rate of 44.736 Mbps globally), without multi-stage multiplexing or demultiplexing. Thus, this section of SCHMIDT et al. teaches away from the use of a multiplexer or demultiplexer. This section of SCHMIDT et al. in no

way discloses or suggests a multiplexer configured to simultaneously receive tributary data streams including a POS tributary data stream, and an ATM tributary data stream, the multiplexer being further configured to combine the simultaneously received tributary data streams into a single channelized SONET data stream, as recited in claim 53.

Therefore, even if MASTER et al. and SCHMIDT et al. were combined with VOGEL, such a combination could not fairly be construed to disclose a multiplexer configured to simultaneously receive tributary data streams including a POS tributary data stream, and an ATM tributary data stream, the multiplexer being further configured to combine the simultaneously received tributary data streams into a single channelized SONET data stream, as recited claim 53. Further, even if for the sake of argument, the combination of MASTER et al. and SCHMIDT et al. with VOGEL could fairly be construed to disclose each of the features of claim 53, Applicants assert that the reasons for combining MASTER et al. and SCHMIDT et al. with VOGEL do not satisfy the requirements of 35 U.S.C. § 103.

For example, with respect to the reasons for combining MASTER et al. and SCHMIDT et al. with VOGEL, the Examiner alleges (final Office Action, pp. 6 and 7):

It would have been obvious to add the VTs of the Schmidt to the STS-1 of Vogel in order to carry a combined stream of packet over SONET and ATM over SONET in a single SONET stream in order to better utilize the bandwidth as well as standards compliant in order to interoperate with legacy SONET systems

It would have been obvious to one of ordinary skill in the art at the time of the invention to add the tributary data streams simultaneously of Master in place of the tributary data streams of Vogel and Schnidy in order to create SONET or SDH which can be add/drop multiplexed in compliance with the SONET or SDH standards.

Applicants submit that the Examiner's allegations are merely conclusory statements of alleged benefits of the combination. Such conclusory statements have been repeatedly held to be insufficient for establishing a *prima facie* case of obviousness. In this respect, Applicants rely upon KSR International Co. v. Teleflex Inc., 550 U.S. ____ (April 30, 2007) (citing In re Kahn, 441 F.3d 977, 988 (Fed. Cir. 2006)), where it was held that rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.

Furthermore, the Examiner does not explain how incorporating MASTER et al.'s typical multiplexing structure, depicted in Fig. 3B of MASTER et al., into VOGEL's SONET physical layer device 30 would allow VOGEL's SONET physical layer device 30 to receive tributary data streams that simultaneously include a POS tributary data stream and an ATM tributary data stream. The Examiner's allegations fall short of providing the articulated reasoning required by KSR.

Moreover, the Examiner does not explain how incorporating SCHMIDT et al.'s channel interleaving technique into VOGEL's SONET physical layer device 30 would allow VOGEL's SONET physical layer device 30 to interoperate with legacy SONET systems, as the Examiner alleges. The Examiner's allegations fall short of providing the articulated reasoning required by KSR.

Moreover, Applicants note that VOGEL is directed to a SONET physical layer device 30 (Abstract). MASTER et al. is directed to adaptable digital protocol processing (Abstract). MASTER et al. does not relate to the SONET protocol. Clearly, there can be no motivation to combine the SONET physical layer device of VOGEL and the non-

SONET multiplexing format aspects of MASTER et al. to achieve Applicants' invention. These references are unrelated. One of ordinary skill in the art would not have been motivated to combine disparate features from MASTER et al. with VOGEL, absent impermissible hindsight.

Since VOGEL, MASTER et al., and SCHMIDT et al. do not disclose or suggest a multiplexer configured to simultaneously receive tributary data streams including a POS tributary data stream, and an ATM tributary data stream, the multiplexer being further configured to combine the simultaneously received tributary data streams into a single channelized SONET data stream, VOGEL, MASTER et al., and SCHMIDT et al. cannot disclose or suggest a line card coupled to the multiplexer and configured to receive the single channelized SONET data stream, as also recited in claim 53.

For at least the foregoing reasons, Applicants submit that claim 53 is patentable over VOGEL, MASTER et al., and SCHMIDT et al. Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the rejection of claim 53 under 35 U.S.C. § 103(a) based on VOGEL, MASTER et al., and SCHMIDT et al.

Claims 54-58 depend from claim 53. Therefore, Applicants submit that these claims are patentable over VOGEL, MASTER et al., and SCHMIDT et al., whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 53. Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the rejection of claims 54-58 under 35 U.S.C. § 103(a) based on VOGEL, MASTER et al., and SCHMIDT et al.

Claims 60-64 depend from claim 59. Without acquiescing in the rejection of claims 60-64, Applicants submit that the disclosure of SCHMIDT et al. does not remedy

the deficiencies in the disclosures of VOGEL and MASTER et al. discussed above with respect to claim 59. Therefore, Applicants submit that claims 60-64 are patentable over VOGEL, MASTER et al., and SCHMIDT et al., whether taken alone or in any reasonable combination, for at least the reasons as set forth above with respect to claim 59.

Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the rejection of claims 60-64 under 35 U.S.C. § 103(a) based on VOGEL, MASTER et al., and SCHMIDT et al.

Rejection under 35 U.S.C. § 103(a) based on VOGEL and SCHMIDT et al.

Claims 65-69 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over VOGEL in view of SCHMIDT et al. Applicants respectfully traverse this rejection.

Independent claim 65 is directed to a method for transmitting information over a fiber optic cable. The method includes constructing a packet over synchronous optical network (POS) data stream; constructing an asynchronous transfer mode (ATM) data stream; combining the POS data stream and the ATM data stream into a single channelized synchronous optical network (SONET) data stream; and transmitting the single SONET data stream. VOGEL and SCHMIDT et al., whether taken alone or in any reasonable combination, do not disclose or suggest this combination of features.

For example, VOGEL and SCHMIDT et al. do not disclose or suggest combining the POS data stream and the ATM data stream into a single channelized SONET data stream. The Examiner relies on col. 5, line 25 to col. 6, line 45, of VOGEL for allegedly disclosing "[c]onstructing a single channelized synchronous optical network data stream" (final Office Action, p. 10). The Examiner admits that VOGEL does not disclose "combining the POS data stream and the ATM data stream into single data stream" and

relies on col. 3, lines 33-67, of SCHMIDT et al. for allegedly disclosing "combining different services into a single data stream" (final Office Action, p. 10). Applicants objects to the Examiner's piecemeal attempt at reconstructing Applicants' claim 65.

Applicants' claim 65 does not recite "[c]onstructing a single channelized synchronous optical network data stream" and "combining different services into a single data stream," as the Examiner alleges. Instead, Applicants' claim 65 specifically recites combining the POS data stream and the ATM data stream into a single channelized SONET data stream. Instead of addressing this specifically recited feature of claim 65, the Examiner breaks the feature down into illogical portions and points to a section of VOGEL for allegedly disclosing one portion of the above feature of claim 65 and on an unrelated section of SCHMIDT et al. for allegedly disclosing another portion of the above feature of claim 65. Applicants submit that such attempts at reconstructing Applicants' claims are clearly impermissible.

Moreover, the Examiner's allegation as to what SCHMIDT et al. allegedly discloses (i.e., "combining different services into a single data stream") does not address the admitted deficiency of VOGEL. As indicated above, claim 65 does not recite combining different services into a single data stream. Instead, claim 65 specifically discloses combining the POS data stream and the ATM data stream into a single channelized SONET data stream. The Examiner's allegation regarding SCHMIDT et al. does not address this feature of claim 65.

Applicants note that since, as the Examiner admits, VOGEL does not disclose combining the POS data stream and the ATM data stream, VOGEL cannot reasonably be

relied on for disclosing combining the POS data stream and the ATM data stream into a single channelized SONET data stream, as recited in claim 65.

Nevertheless, at col. 5, line 25 to col. 6, line 45, VOGEL discloses that a single-chip SONET physical layer device 30 that includes a control port 32, UTOPIA bus interface port 34, a standard bus interface port 36, a SONET interface port 38, control and management interface block 40, enhanced UTOPIA interface block 42, point-to-point (PPP) processing block 44, SONET framer block 46, and SONET line interface 48. The Examiner relies on VOGEL's SONET framer block 46 as allegedly performing the above feature of claim 65 (final Office Action, p. 10). Applicants note, however, that VOGEL in no way discloses or suggests that VOGEL's SONET framer block 46 combines the POS data stream and the ATM data stream into a single channelized SONET data stream. Instead, VOGEL merely discloses that SONET framer block 46 forms a SONET frame (see, for example, col. 6, lines 1-3). The Examiner provides no explanation as to why one skilled in the art would reasonably construe VOGEL's SONET framer block 46 as performing combining the POS data stream and the ATM data stream into a single channelized SONET data stream. Accordingly, the Examiner has not met the initial burden of establishing a *prima facie* case of obviousness with respect to claim 65.

In addition, VOGEL discloses that SONET device 30 operates in one of three modes. Specifically, VOGEL discloses that SONET device 30 can transmit standard ATM cells in SONET synchronous payload envelope (SPE) fields (col. 5, line 50 to page 6, line 24), PPP data frames in ATM cells in SONET SPE fields (col. 6, lines 25-37), and PPP data frames from a UTOPIA Interface in SONET SPE fields (col. 6, lines 41-61). VOGEL does not disclose or suggest that any of these different modes includes

combining the POS data stream and the ATM data stream into a single channelized SONET data stream, as recited in claim 65. In fact, the entire VOGEL disclosure does not even mention combining different data streams.

The disclosure of SCHMIDT et al. does not remedy the above deficiency in the disclosure of VOGEL. Col. 3, lines 33-67, of SCHMIDT et al. is reproduced above. This section of SCHMIDT et al. discloses SONET transmission equipment that interleaves STS-1 channels with other STS-1 channels. SCHMIDT et al. discloses that this functionality permits easy access to lower speed signals, such as T1 (a rate of 1.544 Mbps in North America) and T3 (a rate of 44.736 Mbps globally), without multi-stage multiplexing or demultiplexing. This section of SCHMIDT et al. in no way discloses or suggests combining the POS data stream and the ATM data stream into a single channelized SONET data stream, as recited in claim 65. In fact, this section of SCHMIDT et al. does not disclose or suggest a POS data stream and an ATM data stream.

Therefore, even if SCHMIDT et al. were combined with VOGEL, such a combination could not fairly be construed to disclose combining the POS data stream and the ATM data stream into a single channelized SONET data stream, as recited in claim 65. Further, even if for the sake of argument, the combination of SCHMIDT et al. with VOGEL could fairly be construed to disclose each of the features of claim 65, Applicants assert that the reasons for combining SCHMIDT et al. with VOGEL do not satisfy the requirements of 35 U.S.C. § 103.

For example, with respect to the reasons for combining SCHMIDT et al. with VOGEL, the Examiner alleges (final Office Action, p. 10):

It would have been obvious to add the composite tributary streams of Schmidt in place of the STS SPE of Vogel in order to carry the POS and ATM data simultaneously in order to more efficiently utilize the bandwidth and also be standards compliant.

Applicants submit that the Examiner's allegation is merely a conclusory statement of an alleged benefit of the combination. Such conclusory statements have been repeatedly held to be insufficient for establishing a *prima facie* case of obviousness. In this respect, Applicants rely upon KSR International Co. v. Teleflex Inc., 550 U.S. ____ (April 30, 2007) (citing In re Kahn, 441 F.3d 977, 988 (Fed. Cir. 2006)), where it was held that rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.

Furthermore, the Examiner does not explain how incorporating SCHMIDT et al.'s interleaving of STS-1 channels into VOGEL's SONET physical layer device 30 would allow VOGEL's SONET physical layer device 30 to utilize bandwidth more efficiently and be standards compliant. The Examiner's allegations fall short of providing the articulated reasoning required by KSR.

Since VOGEL and SCHMIDT et al. do not disclose or suggest combining the POS data stream and the ATM data stream into a single channelized synchronous optical network (SONET) data stream, VOGEL and SCHMIDT et al. cannot disclose or suggest transmitting the single SONET data stream, as also recited in claim 65.

For at least the foregoing reasons, Applicants submit that claim 65 is patentable over VOGEL and SCHMIDT et al. Accordingly, Applicants respectfully request that the

Examiner reconsider and withdraw the rejection of claim 65 under 35 U.S.C. § 103(a) based on VOGEL and SCHMIDT et al.

Claims 66-69 depend from claim 65. Therefore, Applicants submit that these claims are patentable over VOGEL and SCHMIDT et al., whether taken alone or in any reasonable combination, for at least the reasons given above with respect to claim 65. Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the rejection of claims 66-69 under 35 U.S.C. § 103(a) based on VOGEL and SCHMIDT et al.

Double patenting rejection based on BROMLEY et al., MASTER et al., and VOGEL

Claims 46, 47, and 59 stand rejected on the ground of nonsatutory obviousness-type double patenting as allegedly being unpatentable over claims 1, 3, 5, and 8 of BROMLEY et al. in view of MASTER et al., and further in view of VOGEL. Applicants respectfully traverse this rejection.

At the outset, the fact that the Examiner must look to two separate references in an attempt to incorporate features missing from claims 1, 3, 5, and 8 of BROMLEY et al. into these claims of BROMLEY et al. is a clear indication of the inappropriateness of this double patenting rejection. Applicants request that the Examiner reconsider and withdraw this rejection.

With respect to claim 46, Applicants submit that claims 1, 3, 5, and 8 of BROMLEY et al. do not recite a demultiplexer configured to receive a channelized SONET data stream and separate the channelized SONET data stream into constituent tributary data streams, the tributary data streams simultaneously including a packet over SONET (POS) tributary data stream, and an asynchronous transfer mode (ATM) tributary

data stream, as recited in claim 46 of the present application. Instead, claim 1 of Bromley et al. recites an input port for receiving the data, the data being formatted as SONET frames that contain data encapsulated in one of multiple formats within the SONET frames, and decapsulation logic configured to delineate the multiple formats to identify particular ones of the multiple formats and configured to decapsulate the delineated data in the multiple formats into a packet format used in the forwarding node, the decapsulation logic performing the delineation and decapsulation without executing processor instructions (col. 16, lines 19-30). Claim 3 of Bromley et al. recites that the decapsulation logic includes a delineator for delineating Asynchronous Transfer Mode (ATM) cells in the data (col. 16, lines 35-37). Claim 5 of Bromley et al. recites that the decapsulation logic extracts Internet Protocol (IP) packets from the data. Claim 8 of Bromley et al. recites that the decapsulation logic includes a Point to Point Protocol (PPP) deframer for deframing PPP frames.

The Examiner alleges that the "decapsulation logic" recited in claims 1, 3, 5, and 8 of BROMLEY et al. (final Office Action, pp. 12-13) is equivalent to the demultiplexer recited in claim 46 of the present application. Applicants respectfully disagree with the Examiners interpretation of BROMLEY et al.

BROMLEY et al. discloses a receive ASIC 70 on line card 59 that decapsulates data and determines how to direct data in an input data stream, and a transmit ASIC 64 on line card 53 that encapsulates the data in a format that is appropriate for a destination (see, for example, col. 6, line 67 to col. 7, line 6). BROMLEY et al. further discloses SONET multiplexers 50 and 52 that multiplex four OC-12 data streams into an OC-48 data stream, and demultiplexers 50 and 52 positioned at feeds of output ports that take

OC-48 from the line card and split it into constituent tributaries, such as OC-12, OC-3, or OC-3 tributaries (see, for example, col. 6, lines 53-62). As shown by these disclosures, decapsulation is provided by ASIC 70 and not by demultiplexers 50 and 52. Fig. 7 of BROMLEY et al. further provides proof of the distinction between demultiplexing and decapsulation. For example, Fig. 7 shows that an OC-48 input data stream 90 is first demultiplexed 92 into separate tributaries or channels, and subsequently, packets are decapsulated 94 (see, for example, col. 7, lines 26-35).

In light of the above, Applicants respectfully submit that the "decapsulation logic" recited in claims 1, 3, 5, and 8 of BROMLEY et al. does not correspond to a demultiplexer configured to receive a channelized SONET data stream and separate the channelized SONET data stream into constituent tributary data streams, the tributary data streams simultaneously including a packet over SONET (POS) tributary data stream, and an asynchronous transfer mode (ATM) tributary data stream and a line card coupled to the demultiplexer and configured to provide the demultiplexer with the channelized SONET data stream, as recited in claim 46 of the present application. Applicants also respectfully submit that MASTER et al. and VOGEL do not explain why the decapsulation logic recited in claim 1 of BROMLEY et al. would be transformed into the demultiplexer recited in claim 46. The Examiner's double patenting rejection of claim 46 is clearly unreasonable.

For at least these reasons, Applicants respectfully request that the Examiner reconsider and withdraw the double patenting rejection of claim 46 based on BROMLEY et al., MASTER et al., and VOGEL.

Claim 47 depends from claim 46. Therefore, Applicants respectfully request that the Examiner reconsider and withdraw the double patenting rejection of claim 47 based on BROMLEY et al., MASTER et al., and VOGEL.

Independent claim 59 recites features similar to (yet possibly of different scope than) features described above with respect to claim 46. Therefore, Applicants respectfully request that the Examiner reconsider and withdraw the double patenting rejection of claim 59, based on BROMLEY et al., MASTER et al., and VOGEL, for at least reasons similar to reasons given above with respect to claim 46.

***Double patenting rejection based on
BROMLEY et al., MASTER et al., VOGEL, and SCHMIDT et al.***

Claims 48-58 and 60-64 stand rejected on the ground of non-statutory obviousness-type double patenting as allegedly being unpatentable over claims 1, 3, 5, and 8 of BROMLEY et al. in view of MASTER et al., further in view of VOGEL, and still further in view of SCHMIDT et al. Applicants respectfully traverse this rejection.

At the outset, the fact that the Examiner must look to three separate references in an attempt to incorporate features missing from claims 1, 3, 5, and 8 of BROMLEY et al. into these claims of BROMLEY et al. is a clear indication of the inappropriateness of this double patenting rejection. Applicants request that the Examiner reconsider and withdraw this rejection.

Claims 48-52 depend from claim 46. The disclosure of SCHMIDT et al. does not remedy the deficiencies in the disclosures of BROMLEY et al., MASTER et al., and VOGEL set forth above with respect to claim 46. Therefore, Applicants respectfully request that the Examiner reconsider and withdraw the double patenting rejection of

claims 48-52, based on BROMLEY et al., MASTER et al., VOGEL, and SCHMIDT et al., for at least the reasons given above with respect to claim 46.

Independent claim 53 is directed to one or more devices in a data processing environment that includes a multiplexer configured to simultaneously receive tributary data streams including a packet over synchronous optical network (POS) tributary data stream, and an asynchronous transfer mode (ATM) tributary data stream, the multiplexer being further configured to combine the simultaneously received tributary data streams into a single channelized synchronous optical network (SONET) data stream; and a line card coupled to the multiplexer and configured to receive the single channelized SONET data stream. Claims 1, 3, 5, and 8 of BROMLEY et al. do not recite, for example, a demultiplexer configured to receive a channelized SONET data stream and separate a multiplexer configured to simultaneously receive tributary data streams including a packet over synchronous optical network (POS) tributary data stream, and an asynchronous transfer mode (ATM) tributary data stream, the multiplexer being further configured to combine the simultaneously received tributary data streams into a single channelized synchronous optical network (SONET) data stream.

Instead, claim 1 of BROMLEY et al. recites an input port for receiving the data, the data being formatted as SONET frames that contain data encapsulated in one of multiple formats within the SONET frames, and decapsulation logic configured to delineate the multiple formats to identify particular ones of the multiple formats and configured to decapsulate the delineated data in the multiple formats into a packet format used in the forwarding node, the decapsulation logic performing the delineation and decapsulation without executing processor instructions (col. 16, lines 19-30). Claim 3 of

BROMLEY et al. recites that the decapsulation logic includes a delineator for delineating Asynchronous Transfer Mode (ATM) cells in the data (col. 16, lines 35-37). Claim 5 of BROMLEY et al. recites that the decapsulation logic extracts Internet Protocol (IP) packets from the data. Claim 8 of BROMLEY et al. recites that the decapsulation logic includes a Point to Point Protocol (PPP) deframer for deframing PPP frames.

The Examiner alleges that the "decapsulation logic" recited in claims 1, 3, 5, and 8 of BROMLEY et al. (final Office Action, p. 16) is equivalent to the multiplexer recited in claim 53 of the present application. Applicants respectfully disagree with the Examiner's interpretation of BROMLEY et al.

BROMLEY et al. discloses a receive ASIC 70 on line card 59 that decapsulates data and determines how to direct data in an input data stream, and a transmit ASIC 64 on line card 53 that encapsulates the data in a format that is appropriate for a destination (see, for example, col. 6, line 67 to col. 7, line 6). BROMLEY et al. further discloses SONET multiplexers 50 and 52 that multiplex four OC-12 data streams into an OC-48 data stream, and demultiplexers 50 and 52 positioned at feeds of output ports that take OC-48 from the line card and split it into constituent tributaries, such as OC-12, OC-3, or OS-3 tributaries (see, for example, col. 6, lines 53-62). As shown by these disclosures, decapsulation is provided by ASIC 70 and not by multiplexer 50. Fig. 7 of BROMLEY et al. further provides proof of the distinction between multiplexing and decapsulation.

In light of the above, Applicants respectfully submit that the "decapsulation logic" recited in claims 1, 3, 5, and 8 of BROMLEY et al. does not correspond to a multiplexer configured to simultaneously receive tributary data streams including a packet over synchronous optical network (POS) tributary data stream, and an asynchronous transfer

mode (ATM) tributary data stream, the multiplexer being further configured to combine the simultaneously received tributary data streams into a single channelized synchronous optical network (SONET) data stream, as recited in claim 53 of the present application. Applicants also respectfully submit that MASTER et al., VOGEL, and SCHMIDT et al. do not explain why the decapsulation logic, recited in claim 1 of BROMLEY et al., would be transformed into the multiplexer recited in claim 53. The Examiner's double patenting rejection of claim 53 is clearly unreasonable.

For at least these reasons, Applicants respectfully request that the Examiner reconsider and withdraw the double patenting rejection of claim 53 based on BROMLEY et al., MASTER et al., VOGEL, and SCHMIDT et al.

Claims 54-58 depend from claim 53. Therefore, Applicants respectfully request that the Examiner reconsider and withdraw the double patenting rejection of claims 54-58, based on BROMLEY et al., MASTER et al., VOGEL, and SCHMIDT et al., for at least the reasons given above with respect to claim 53.

Claims 60-64 depend from claim 59. The disclosure of SCHMIDT et al. does not remedy the deficiencies in the disclosures of BROMLEY et al., MASTER et al., and VOGEL set forth above with respect to claim 59. Therefore, Applicants respectfully request that the Examiner reconsider and withdraw the double patenting rejection of claims 60-64, based on BROMLEY et al., MASTER et al., VOGEL, and SCHMIDT et al., for at least the reasons given above with respect to claim 59.

***Double patenting rejection based on
BROMLEY et al., VOGEL, and SCHMIDT et al.***

Claims 65-69 stand rejected on the ground of non-statutory obviousness-type double patenting as allegedly being unpatentable over claims 1, 3, 5, and 8 of BROMLEY et al. in view of VOGEL, and further in view of SCHMIDT et al. Applicants respectfully traverse this rejection.

At the outset, the fact that the Examiner must look to two separate references in an attempt to incorporate features missing from claims 1, 3, 5, and 8 of BROMLEY et al. into these claims of BROMLEY et al. is a clear indication of the inappropriateness of this double patenting rejection. Applicants request that the Examiner reconsider and withdraw this rejection.

Independent claim 65 is directed to a method for transmitting information over a fiber optic cable. The method includes constructing a packet over synchronous optical network (POS) data stream; constructing an asynchronous transfer mode (ATM) data stream; combining the POS data stream and the ATM data stream into a single channelized synchronous optical network (SONET) data stream; and transmitting the single SONET data stream. Claims 1, 3, 5, and 8 of BROMLEY et al. do not recite, for example, constructing an asynchronous transfer mode (ATM) data stream; combining the POS data stream and the ATM data stream into a single channelized synchronous optical network (SONET) data stream.

Instead, claim 1 of BROMLEY et al. recites an input port for receiving the data, the data being formatted as SONET frames that contain data encapsulated in one of multiple formats within the SONET frames, and decapsulation logic configured to delineate the multiple formats to identify particular ones of the multiple formats and configured to decapsulate the delineated data in the multiple formats into a packet format

used in the forwarding node, the decapsulation logic performing the delineation and decapsulation without executing processor instructions (col. 16, lines 19-30). Claim 3 of BROMLEY et al. recites that the decapsulation logic includes a delineator for delineating Asynchronous Transfer Mode (ATM) cells in the data (col. 16, lines 35-37). Claim 5 of BROMLEY et al. recites that the decapsulation logic extracts Internet Protocol (IP) packets from the data. Claim 8 of BROMLEY et al. recites that the decapsulation logic includes a Point to Point Protocol (PPP) deframer for deframing PPP frames.

Applicants respectfully submit that claims 1, 3, 5, and 8 of BROMLEY et al. do not recite combining the POS data stream and the ATM data stream into a single channelized synchronous optical network (SONET) data stream, as recited in claim 65 of the present application. Applicants also respectfully submit that VOGEL and SCHMIDT et al. do not explain why the input port, the decapsulation logic, or the programmable pattern storage, recited in claim 1 of BROMLEY et al., would be transformed to combine the POS data stream and the ATM data stream into a single channelized synchronous optical network (SONET) data stream into the multiplexer, as recited in claim 65. The Examiner's double patenting rejection of claim 65 is clearly unreasonable.

For at least these reasons, Applicants respectfully request that the Examiner reconsider and withdraw the double patenting rejection of claim 65 based on BROMLEY et al., VOGEL, and SCHMIDT et al.

Claims 66-69 depend from claim 65. Therefore, Applicants respectfully request that the Examiner reconsider and withdraw the double patenting rejection of claims 66-69, based on BROMLEY et al., VOGEL, and SCHMIDT et al., for at least the reasons given above with respect to claim 65.

Conclusion

In view of the foregoing remarks, Applicants respectfully request the Examiner's reconsideration of the application and the timely allowance of pending claims 46-69.

As Applicants' amendments and remarks with respect to the Examiner's rejections overcome the rejections, Applicants' silence as to certain assertions by the Examiner in the Office Action or certain requirements that may be applicable to such assertions (e.g., whether a reference constitutes prior art, reasons to modifying a reference and/or combine references, assertions as to dependent claims, etc.) is not a concession by Applicants that such assertions are accurate or such requirements have been met, and Applicants reserve the right to dispute these assertions/requirements in the future.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1070 and please credit any excess fees to such deposit account.

Respectfully submitted,

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